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27805	7590	02/14/2006	EXAMINER	
THOMPSON HINE L.L.P. 2000 COURTHOUSE PLAZA , N.E. 10 WEST SECOND STREET DAYTON, OH 45402			HUG, ERIC J	
			ART UNIT	PAPER NUMBER
			1731	

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Please find below and/or attached an Office communication concerning this application or proceeding.



### DETAILED ACTION

The following is in response to the amendment filed December 1, 2005.

#### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 13-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 13 recites "applying said **slurry** to at least one side of said paper...." (emphasis added). The slurries of the present invention are used as a component in a coating formulation, not as a coating itself. There is no disclosure of applying a slurry directly to a paper substrate.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 1-5 and 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imabeppu et al (US 5,741,584).

Imabeppu discloses a coated paper for ink jet recording prepared with an undercoating layer containing alumina and an adhesive, examples of which may include polyvinyl alcohol (column 5, lines 16-30). The amount of the adhesive is 5 to 50 parts per 100 parts of alumina. The undercoating layer can further comprise a cationic resin, including a resin containing a quaternary ammonium group (column 5, lines 31-41). The amount of the cationic resin is 1 to 30 parts per 100 parts of alumina. The coating itself contains up to 65% solids (column 5, lines 49-54). Thus, the amounts of alumina, nonionic material (adhesive), and cationic material read on the claimed ranges. The coating is applied at a weight of 2-50 g/m<sup>2</sup> (column 5, lines 49-54). Using conversions of 3300 ft<sup>2</sup> = 307 m<sup>2</sup> and 1 lb = 454 g, this coating weight range is equivalently about 1.35 to 33.6 lb/3300 ft<sup>2</sup>. The coating may be applied by a blade coater, an air knife coater, a roll coater, a brush coater, a Champflex coater, a bar coater, or a gravure coater (see column 5, lines 54-57). The coating is dried at elevated temperatures (see Examples). After drying, the undercoating layer can be further subjected to a smoothing treatment, such as super-calendering, brushing, or cast-finishing (see column 5, lines 58-60).

The claims are unpatentable, because the ranges of claimed values are either encompassed by or overlap those of Imabeppu. The ranges encompassed by Imabeppu are not so broad as to encompass so large a number of possible distinct compositions to preclude

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obviousness. The Federal Circuit and its predecessor court, the CCPA, have repeatedly held that presumption of obviousness was formed, based on the ken of routineer, whenever a difference was deemed minor; *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003), it was held that a prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness; *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed.Cir. 1990), it was held that claimed ranges which overlap or lie inside ranges disclosed by the prior art is sufficient to establish a prima facie case of obviousness.

2. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaliski et al (US 3,804,656).

Kaliski discloses a fluid dispersed suspension of clay (alumina-containing pigment) in the presence of the combination of a nonionic surface active agent and a cationic surface active agent at an alkaline pH. The suspension is suitable for coating paper. The nonionic species may include mono-alcohols or glycols (column 3, lines 41-56). The cationic compounds include quaternary ammonium salts (column 3, line 58 to column 4, line 12). A dispersion of up to 65% solids may be prepared (column 4, lines 40-55). Note that 45% is preferred. The nonionic dispersant is used in amount within the range of 0.1 to 0.5%, based on the weight of the pigment. The cationic surface active agent is also in an amount within the range of 0.1 to 0.5% of the pigment (see column 4, lines 14-28). For a slurry containing 65% pigment, the amounts of nonionic dispersant and cationic surface active agent can be as high as 0.325% of the slurry

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solids content. The coated papers of Kaliski have a coating weight of up to  $10 \text{ g/m}^2$ . Using conversions of  $3300 \text{ ft}^2 = 307 \text{ m}^2$  and  $1 \text{ lb} = 454 \text{ g}$ , this quantity is equivalently up to about  $6.72 \text{ lb}/3300 \text{ ft}^2$ . The sheets can be calendered or uncalendered (see column 8, lines 57-64), thus can be mechanically treated. The coating may be applied by size press, air knives, or blades (column 6, lines 1-2), thus is properly metered. Coated sheets are subsequently dried.

A Brookfield viscosity of 3000 cp at 10 rpm using a No. 3 spindle is disclosed (column 7, lines 65-67). It is felt that this reads on or obviates the claimed viscosity, because the methods of measuring do not differ substantially.

The range of coat weight in Kaliski overlaps the claimed range of coat weight. The quantity of alumina pigment in Kaliski can fall within the claimed range of pigment. The total solids content in Kaliski overlaps the claimed solids content. The claims are unpatentable, because the ranges of claimed values are either encompassed by or overlap those of Kaliski. The ranges encompassed by Imabeppu are not so broad as to encompass so large a number of possible distinct compositions to preclude obviousness. The Federal Circuit and its predecessor court, the CCPA, have repeatedly held that presumption of obviousness was formed, based on the ken of routineer, whenever a difference was deemed minor; *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003), it was held that a prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness; *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed.Cir. 1990), it was held that claimed ranges which overlap or lie inside ranges disclosed by the prior art is sufficient to establish a prima facie case of obviousness.

The quantities of nonionic and cationic materials in Kaliski are outside the claimed ranges. However, any deviations between the amounts of nonionic and cationic materials disclosed by Kaliski and the amounts claimed are considered to be minor. It would have been obvious to one skilled in the art to optimize those quantities depending on the exact species of pigment, nonionic material, and cationic material, other materials that may be present, and on the pH, in order to properly disperse the pigment and provide the desired rheological properties for use in paper coating formulations. Nevertheless, a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985).

***Response to Arguments***

Applicant's arguments filed December 1, 2005 have been fully considered.

The claim objections set forth previously have been withdrawn.

The rejection of claims under 35 U.S.C. 103(a) over Okura et al (US 6,670,037) in view of Yoshino et al (US 6,576,324) set forth previously has been withdrawn. Upon reconsideration, it is recognized that Okura discloses alumina slurries prepared with acidic dispersants and without cationic interfacial modifiers. It is also recognized that the cationic materials in Okura are binders used in the coating formulation, not in the slurries. Furthermore, the formulations of Yoshino are coating formulations, not slurries used in coating formulations.

Applicant's arguments regarding the rejection of claims under 35 U.S.C. 103(a) over Kaliski et al (US 3,804,656) are not persuasive. Kaliski clearly discloses an alumina based slurry with nonionic and cationic surface active agents for use in coating formulations. The rejection set forth above has been modified from its previous version to more clearly point out the claimed features.

The rejection of claims under 35 U.S.C. 102(b) over Imabeppu et al (US 6,096,157) set forth previously has been withdrawn. In its place is a rejection under 35 U.S.C. 103(a) over the parent U.S. patent 5,741,584. This reference qualifies as prior art under 35 U.S.C. 102(b).




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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Hug whose telephone number is 571 272-1192.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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